Moving Weapons Platform Simulator

(MWEPS II)

Presented by

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Harnessing the Power of Technology for the Warfighter

Overview

- **Engineering Need**
- **Training Need**
- **MWEPS II Description**
- **Virtual Target Gunnery System (VTAGS)**
- **Summary**

Engineering Need

- **Crew Served Platforms**
  - **Less costly and less subjective performance rating is needed**

- **Stabilized Remote Operated Platforms**
  - **More testing time is required for more complex platforms**
  - **Quantitative data is required to determine performance**
  - **Realistic specifications need to be determined**

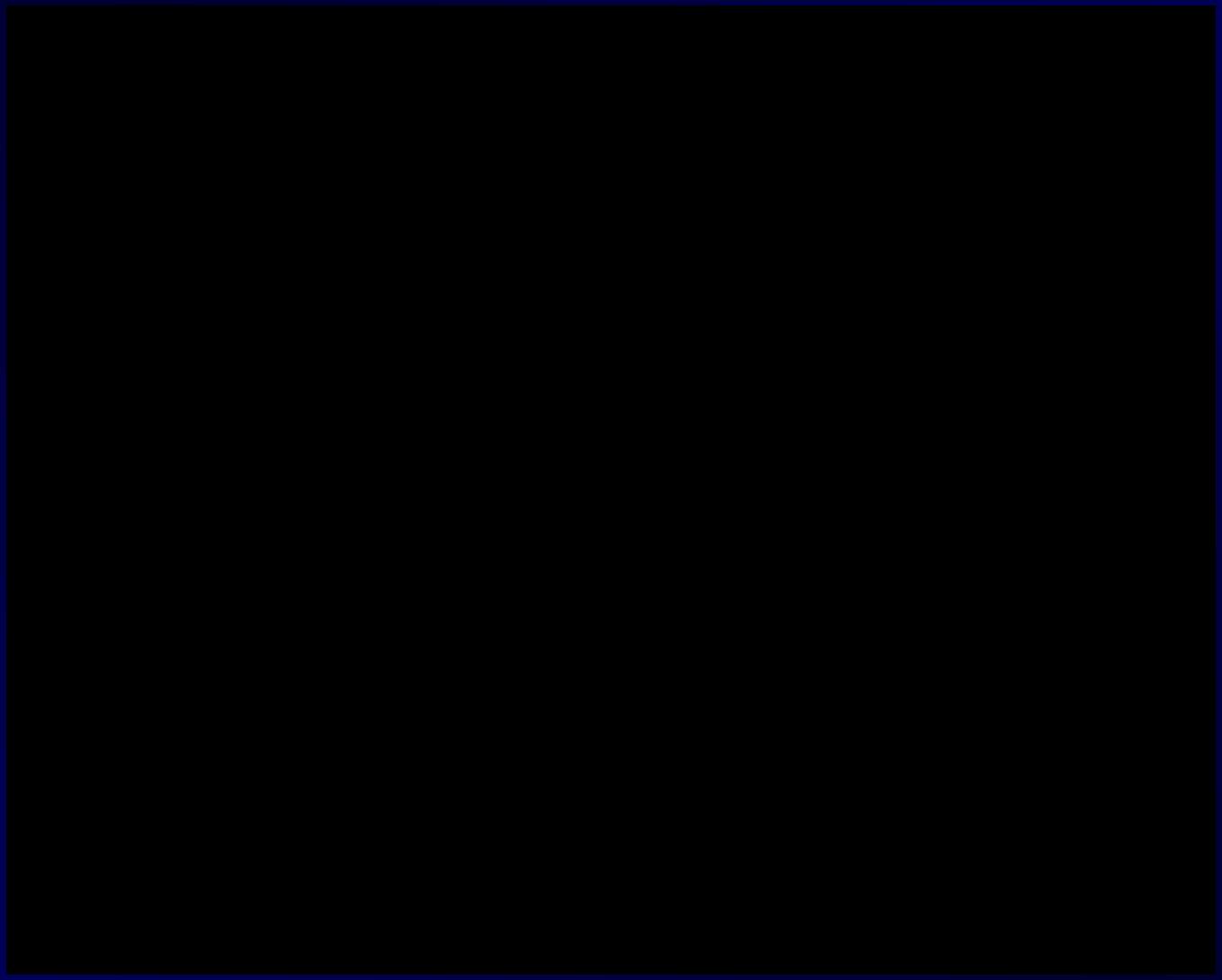
Testing ROSAM Using Prototype

(Remote Operated Small Arms Mount)

Training Need

- **More “Weapons Free” opportunities are needed**
- **Training for night situations is required**
- **Training for various sea state conditions is required**
- **Training for various weather conditions is required**
- **Quantitative scoring of hits is required for feedback to gunner**

Crew Served Using Prototype



MWEPS II Description

- **Provide Engineering Test and Training Platform for Small Arms, Mounts and EO Sensors**
  - **Motion base platform**
  - **Computer generated scenario on a large screen**
  - **Engagement of targets for training**
  - **Engineering feedback collection**
  - **Live fire engineering test compliment**
  - **Scarce training range time supplement**
  - **Performance model for future mount acquisition, development & creation**

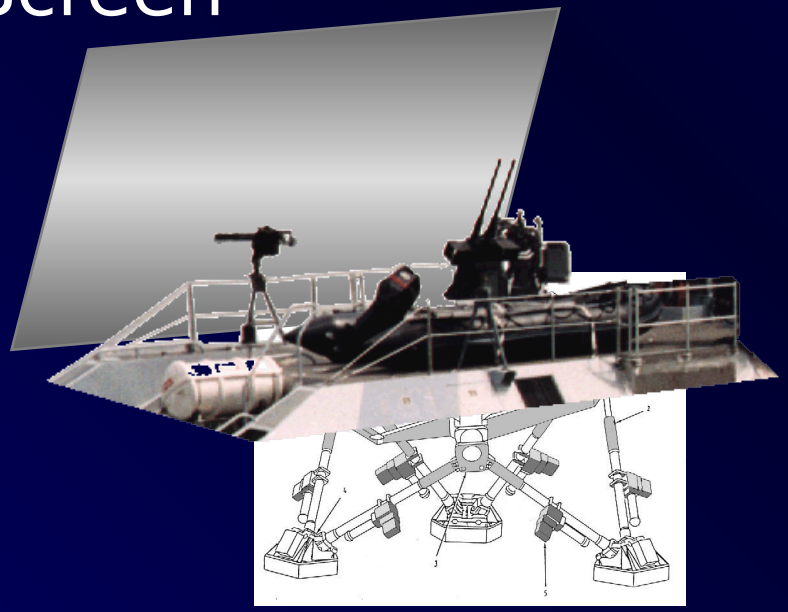
MWEPS II Description

Existing MWEPS I Platform

Fleet Training Center, Dam Neck, VA

MWEPS II Description

Visual Presentation Screen



MK V Special Operations Craft

Motion Base Platform

MWEPS II Description

Motion Platform and Software

- **HSE-6-MS-20-C-1E by Bosch Rexroth Hydraudyne**
- **6 Degree of Freedom Motion Platform**
- **5000 lb. Payload**
- **18 inch stroke length, 30 deg/sec rotational velocity**
- **Ethernet Interface**
- **Electromechanical Actuators**
- **Electric Servomotors**
- **Digital Motor Controls**
- **Motion Control Electronics Box**
- **Modified Vendor Motion Platform Software**

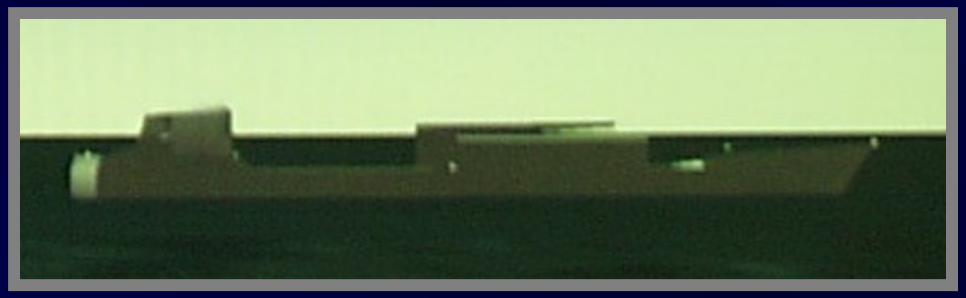
MWEPS II Description

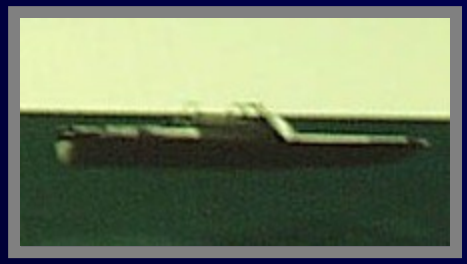
Virtual Environment and Software

- **Large Display Screen**
- **VEGA Marine Software models open ocean scenario**

MWEPS II Description

Virtual Targets and Software





- **Government generated craft models**
- **3 position buoyancy model controls craft motion in response to environment**

MWEPS II Description

Tracker and Software

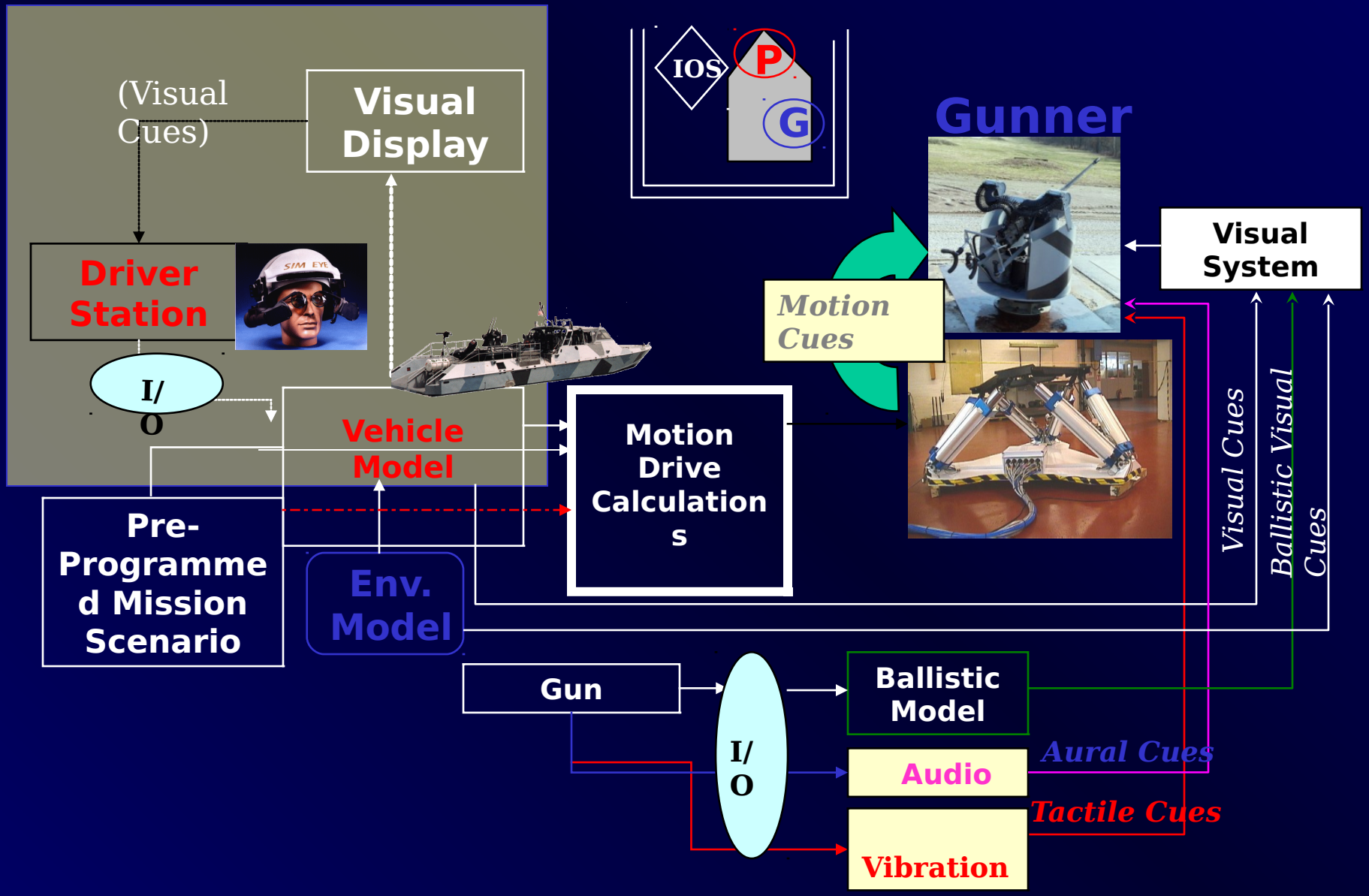
- **Gun positional infrared locator**
  - **Hooks to muzzle of gun**
- **Screen positional optical tracker**
- **Motion platform positional indicator**
- **Computer generated bullet trajectory**
- **Hit or splash model**
- **Government generated software to determine performance**
  - **Provided by NAVAIR TSD - Orlando**

MWEPS II Description

Repeatable Simulation Scenario

- **Open ocean environment**
- **Choose sea state, weather and time of day**
- **Single inbound threat**
- **Engage hostile target**
- **Evasive maneuver to break aim point**
- **Re-engage hostile target**
- **Score hit, miss and aiming criteria**
- **Printable scoring for records**

MWEPS II Description



MWEPS II Description

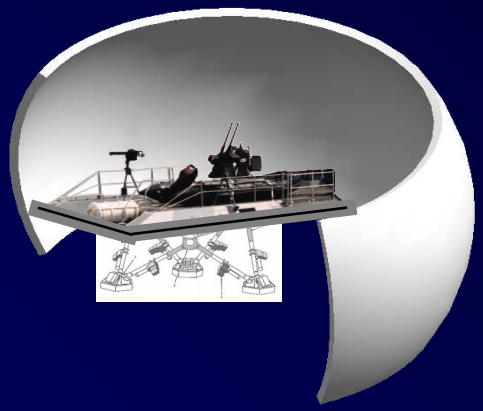
Current Status and Future Plans

- **Motion Platform has been delivered**
- **Concrete base to be finished June 11**
  - **Contract awarded May 12**
  - **30 days to completion**
- **Training and Installation finished June 18**
  - **2 day training course for personnel**
  - **Hydraudyne to ensure proper platform function**
- **Testing of software finished June 23**
  - **Orlando TSD to ensure proper function**
- **MWEPS II available for testing June 25**

MWEPS II Description

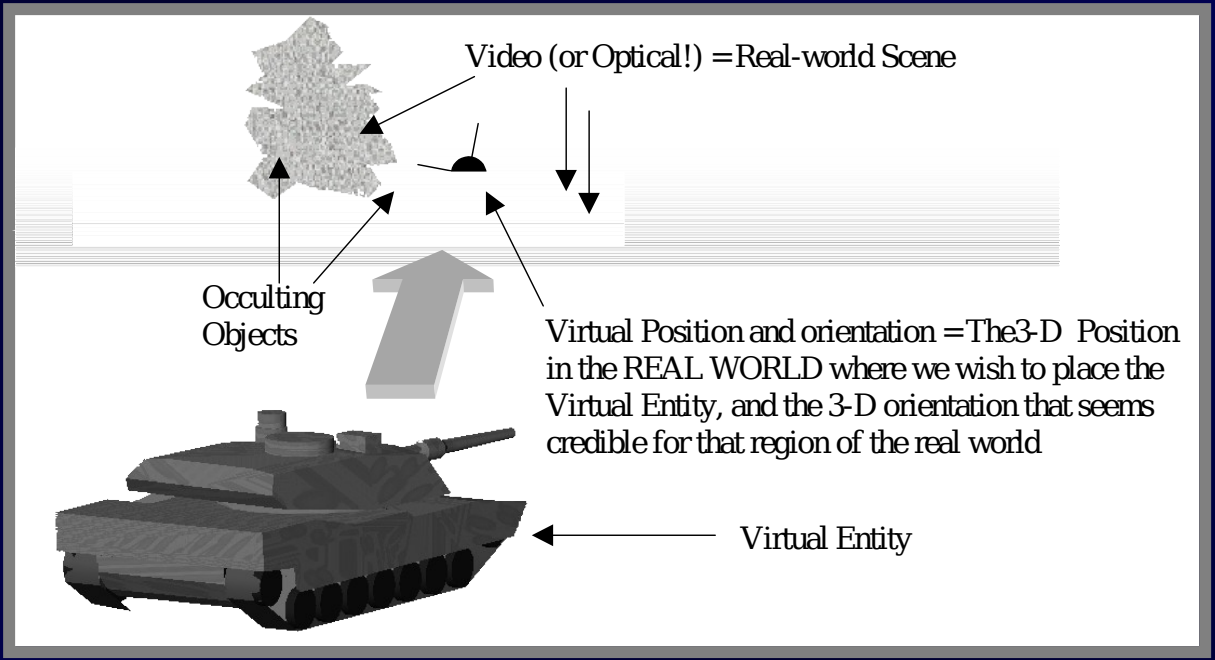
Future Development

- **Additional Craft & Weapon**
  - **Rotary Wing - NAVAIR**
  - **Vehicles - USASOC, USMC**
  - **Fleet Assets**



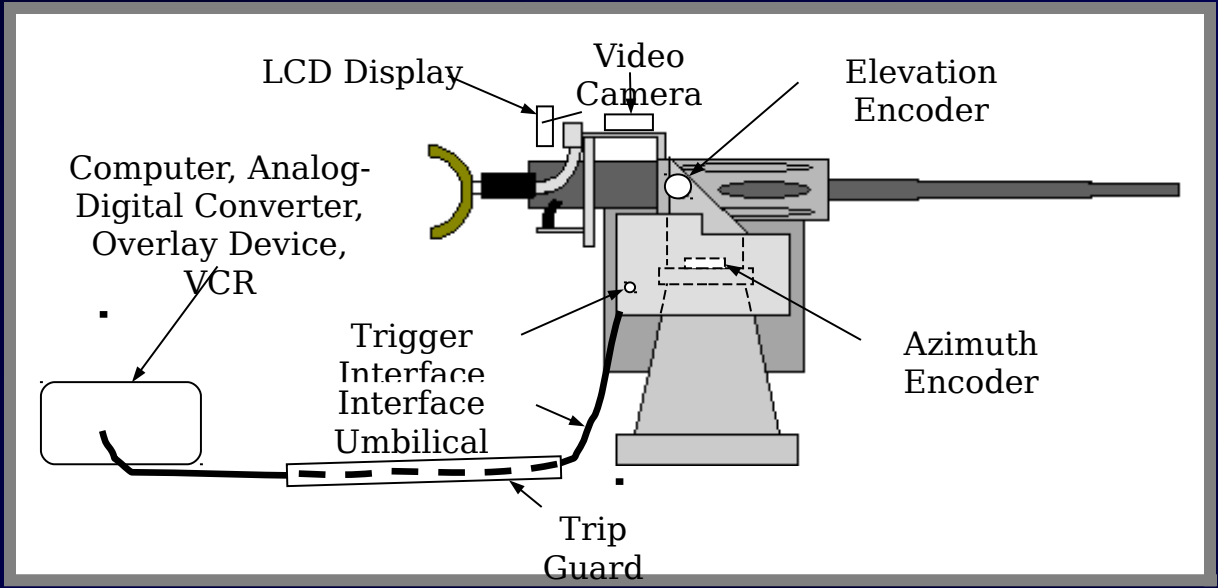
- **Mission Level Scenarios**
  - **Increased Visual Presentation**
  - **Involve More Training Participants**
  - **More Scenarios**
  - **Connectivity to Other Simulators**

Virtual Target Gunnery System (VTAGS)


Video (or Optical!) = Real-world Scene
Occulting Objects
Virtual Position and orientation = The3-D Position in the REAL WORLD where we wish to place the Virtual Entity, and the 3-D orientation that seems credible for that region of the real world
Virtual Entity

- **Permits gunner to engage virtual targets superimposed onto view screen**
- **Can be used w/ live fire or can generate simulated fire**
- **Gives quantitative data to determine performance**

Virtual Target Gunnery System (VTAGS)



- **Easily mountable virtual training aid**
- **Used with weapon systems presently installed on maritime platforms (currently MK93 w/ .50 cal and MK38)**
- **Selectable scenarios that are skill dependant**

NAVSEA
WARFARE CENTERS
CRANE

Virtual Target Gunnery System

(VTAGS)

Virtual Target Gunnery System (VTAGS)

Summary

- **MWEPS II is needed for engineering**
- **MWEPS II is needed for training**
- **MWEPS II can fulfill both of these needs on land**
- **VTAGS can fulfill the training needs at sea and is easily installed on existing maritime platforms**